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NATURAL RADIONUCLIDE FROM SOIL IN A LANDFILL AREA INVESTIGATION

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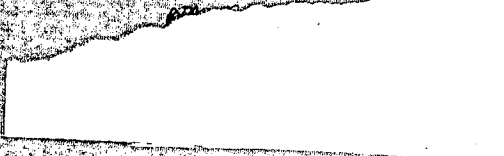
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A study was conducted to determine ^{232}Th , ^{238}U , ^{228}Ra , ^{226}Ra and ^{40}K concentrations in deep soils, from a landfill area. A total of 23 soil samples were collected from deeps range of 1.45m to 18.45m on the different lithological units of the study area. The soil samples were dried, sieved through a fine mesh, sealed in 100-ml HDPE flasks and assayed for high-resolution gamma spectroscopy, considering radioactive equilibrium of the samples and instrumental neutron activation analysis. The results presents a concentration range of (38 to 287) $\text{Bq}\times\text{kg}^{-1}$ of ^{238}U , (35 to 200) $\text{Bq}\times\text{kg}^{-1}$ of ^{232}Th , (42 to 124) $\text{Bq}\times\text{kg}^{-1}$ of ^{228}Ra , (16 to 89) $\text{Bq}\times\text{kg}^{-1}$ of ^{226}Ra and $(390 \pm 306) \text{Bq}\times\text{kg}^{-1}$ for ^{40}K . The arithmetic mean values (AM \pm SD) calculated from all samples are: $(115 \pm 83) \text{Bq}\times\text{kg}^{-1}$ for ^{238}U , $(101 \pm 55) \text{Bq}\times\text{kg}^{-1}$ for ^{232}Th , $60 \pm 19 \text{Bq}\times\text{kg}^{-1}$ for ^{228}Ra , $47 \pm 19 \text{Bq}\times\text{kg}^{-1}$ for ^{226}Ra and $(170 \text{ to } 1260) \text{Bq}\times\text{kg}^{-1}$ for ^{40}K . The data shows that human practices can affect the levels of occurring radionuclide in contemporary soil samples, which will vary greatly according to the geologic origin and composition of the soil and the exposure history in terms of time, industrial practices, anthropogenic additions and exposure to fallout. Clearly, such variability will influence decisively the strategies of management of an interest area. Such applied methodology was successfully appropriated to diagnosis related radioactivity level.

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